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| 2050 Kc. | 7010 Kc. | 7109 Kc. | 8317.2 Kc. |
| 2075 Kc. | 7012 Kc. | 7118 Kc. | 8318 Kc. |
| 2716 Kc. | 7013 Kc. | 7121 Kc. | 8320 Kc. |
| 3482.5 Kc. | 7020 Kc. | 7125 Kc. | 8488 Kc. |
| 3503 Kc. | 7021 Kc. | 7126 Kc. | 8500 Kc. |
| 3509 Kc. | 7022 Kc. | 7130 Kc. | 9125 Kc. |
| 3511 Kc. | 7023 Kc. | 7134 Kc. | 10 Mc. |
| 3512 Kc. | 7031 Kc. | 7145 Kc. | 10.511 Mc. |
| 3515 Kc. | 7032 Kc. | 7156 Kc. | 10.524 Mc. |
| 3516 Kc. | 7032.6 Kc. | 7163 Kc. | 10.530 Mc. |
| 3528 Kc. | 7048 Kc. | 7174 Kc. | 10.536 Mc. |
| 3532 Kc. | 7052 Kc. | 7179 Kc. | 10.544 Mc. |
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| 3670 Kc. | 7068 Kc. | 8027 Kc. | 12.803 Mc. |
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Published by the Wireless Institute of Australia,
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EDITORIAL



OUR WANING HERITAGE

We have a heritage in our fast dwindling Amateur short wave bands which is crying out for protection—a heritage that wasn't handed down to us either, but was hewn from the unknown cosmos, developed, and pioneered by the early Amateurs, many of whom have now passed beyond the vale.

Could we say today that we have honestly protected our heritage? In a manner of speaking—yes, we have. But the encroachment into our bands by Commercial and whittling of frequencies by International Conventions and the demands of prospective Television requirements is something so vital that each and every licensed Amateur should—and will have to—shoulder some responsibility.

Warnings have been given in these columns many times for those who interest themselves in reading them. These same warnings have been printed in every language under the sun in every Amateur Society publication, so "Amateur Radio" is not saying something for the sake of having something to say. Your bands are fast disappearing!

It is not the policy of the Wireless Institute of Australia to criticise its members or any other licensed Amateur. But it is becoming impossible for a few stalwarts to protect this heritage!

To protect what's left it has been said that we cannot now expect to rely on the two larger world societies to represent Australia at the next International Telecommunications Conference—whenever that might be. We must have our own representative there!

To make this possible, the W.I.A. Annual Convention has been cancelled for three years—three years during which funds were to be saved against the day when the expense of sending a delegate would have to be met. The time is fast approaching when the finance will be wanted.

Even before that, it might be possible to hold a Region III Conference (this has been proposed for 1956 during the Olympic Games) so that a delegate could proceed with the backing of Region III countries.

But all the backing in the world—financial or otherwise—will go for naught if the whole structure of Amateur Radio cannot justify its existence in the eyes of those powerful Commercial interests that sit in Geneva or elsewhere, devoid of all sentimental attachments and hardened by the political pressure which drives them to the conference table to do nothing else but procure frequencies to satisfy the hunger of the fast growing Commercial services.

We must justify our existence! It will be no good putting the blame on the Institute and those of its members who give of their precious spare time to battle for what we have left. All the backroom homework and negotiation won't hold those bands if they are not being used. And let it be said right here and now—"The bands are not being used!" They are not being used to a degree that is fast becoming frightening.

The Authorities talk about it and ring their hands as they feel the pressure being brought against them for more frequencies, more frequencies and yet more frequencies. They hear kilocycles of bandwidth almost devoid of signals hour after hour and day after day.

The Amateurs talk about it—to each other! They blame everyone and everything but themselves. BUT THEY ARE TO BLAME. No one else can take the blame. They don't use the bands. Listen on any band almost any time, do that mental arithmetic, then make up your mind to spend an hour or two per week away from the work bench or what-have-you to populate your bands—or perhaps ultimately perish.

FEDERAL EXECUTIVE.

THE CONTENTS

| | | | |
|--|---|------------------------------------|----|
| Wobblers—Sweep Generators | 2 | Prediction Chart for March | 9 |
| Trade Review—Philips Miniature I.F. Transformer, Type 4260 | 7 | Fifty Megacycles and Above | 10 |
| Ross A. Hull V.h.f. Memorial Trophy | 7 | Short Wave Listeners' Section | 12 |
| DX Activity by VK3AHH | 9 | Federal, QSL, and Divisional Notes | 13 |

WOBBULATORS—SWEEP GENERATORS

BY E. CORNELIUS,* VK6EC

THIS colloquialism has become deeply entrenched in the radio-man's vocabulary, and is particularly apt. The wobulator is a frequency modulated oscillator, covering a specific frequency range which, when used with a c.r.o., will plot the frequency response of a component, or all or part of a complete audio, video or radio frequency set up.

In the basic form the wobulator output is a portion of the audio or radio frequency spectrum varying repetitively as a known function of time. The constant amplitude f.m. signal is fed to the unit being tested. The output of the unit is rectified by a suitable detector, and used for vertical deflection of the c.r.t. Horizontal deflection is taken from, or synchronised with, the same waveform used to "wobble" the oscillator.

As the frequency is caused to vary, and the c.r.t. spot moves horizontally, its vertical deflection is proportional to the response of the equipment under test. The resulting trace on the c.r.t. screen is an amplitude/frequency response curve. By sweeping the desired range repeatedly at a low rate, the plot is repeated continuously, persistence of vision overcoming flicker and allowing detailed examination of the response curve. Thus the response curve can be varied while being watched, and the effect of adjustments are visible as they are being made.

F.M. OSCILLATORS

F.m. oscillator circuits are legion, but for sweep generator service, some limitations apply. In general, the range swept is a large percentage of the centre frequency (wide deviation). For test equipment, a minimum of tubes is the aim. So various wide deviation f.m. oscillator circuits have been developed. Three types the author has in use will be described fairly fully. These are:—

Reactance tube†
Miller tube†
Johnson Wobulator‡

A fourth, an R/C type, will be described briefly.¶

Reactance Tube.—In this type, an L/C oscillator of any type using parallel resonance has its tuned circuit shunted by a tube. This tube's circuitry is such that it simulates an inductance or a capacitance, which is variable under the control of the sweeping signal. An inductance in shunt with a tuned circuit will raise its resonant frequency, a capacitance will lower it.

The simplified circuits are shown in Figs. 1a and 1b. In 1a the reactance tube looks like an inductance, in 1b a capacitance. Components R and C, from plate to grid, have impedances such that the grid is fed almost 90° out of phase with the plate. At high frequencies, about 3.5 Mc. for orthodox tubes, the resistor becomes more and more like

a capacitor. The 90° is not maintained, and the circuit operation is impaired until the oscillator output is severely amplitude modulated.

A circuit due to Helfrich§ raises the upper frequency limit to about 30 Mc., a simplified circuit being shown in Fig. 2.

In this circuit, the 90° phase shift is obtained in two steps of 45°, using tube capacitance as the reactive elements. With it, he obtained a linear deviation of 5 Mc. at a centre frequency of 30 Mc., using 6AK5s. I adapted the circuit for a video wobulator to obtain a deviation of 2 Mc. at a centre frequency of 11 Mc., using a 6AC7 and 6SH7s.

Miller Tube.—This method relies on the Miller effect in an amplifier tube, whereby an amplifier with purely resistive plate load shows a pure capacitance grid/cathode. This capacitance varies with the amplification being approximately equal to $-C_p(1+A)$ where A is the stage gain. If the tube is modulated, the capacitance varies, rising as the grid runs positive, and falling to approximately C_p as the tube reaches cut-off. See Fig. 3.

As long as the plate load is a pure resistance at the oscillator frequency, the added impedance across the tuned circuit is a pure capacitance. If the anode load is capacitive, the input impedance has a resistive component, which varies also, shunting the tuned circuit with a variable resistance.

To minimise this, as the frequency is raised, the anode load of the Miller tube must be reduced. Above about 6 Mc., this effect causes severe amplitude modulation of the oscillator output, but up to this frequency, it is the easiest and simplest to get to work.

As the grid of the Miller tube is accepting the full r.f. potential of the tuned circuit, the bias of this tube must be sufficiently high to prevent grid current, or the sweep signal will be completely swamped by grid leak bias, and lose control. The writer uses a 6V6 biased to about -28 volts, for an oscillator using a 6SH7. A deviation of 150 Kc. at 1.75 Mc. is quite easily obtained.

Johnson Wobulator.—This is a most ingenious circuit, which uses only one tube, but a variation using two tubes has proved less tricky to get going. See Fig. 4.

Very wide percentage deviations are obtained, up to 40%, but I have found operation above a rest frequency of one megacycle rather erratic. Below this frequency it is a honey.

Its principle of operation lies in that the whole of the cathode r.f. current flows through the cathode coil, and only that part to the plate flows through the other. The coils are very closely coupled and the polarity is such that as the anode draws a greater share of the current, the effective inductance is reduced, and the frequency rises.

Current sharing between anode and screen is under the control of the sup-

pressor, whence the sweep is injected. An EF50 seems an ideal tube, although I have used a 6AC7, and 6SJ7. I obtain a linear deviation of 400 Kc. at a rest frequency of 1 Mc. For a full description of the operation of the circuit, see reference 1.

R/C Oscillator.—This circuit is a four tube ring oscillator giving four 90° phase shifts. Special tubes seem necessary, as 6SN7s and ECC35s were not satisfactory. The circuit gives a 10 Mc. deviation at 60 Mc. centre frequency. See Fig. 5.

SWEEP For simplicity, a sine wave sweep—the a.c. mains—may be used, but it has three disabilities.

1. The sweep rate is rather high (50 c.p.s.). The resolution obtainable from a sweep oscillator is approximately equal to the square root of the total sweep per second. Thus 1 Mc. swept 50/sec., is a total sweep of 50 Mc./sec. and the resolution is the square root of this, approx. 7 Kc. Variations of response over less than this range will not be resolved. I use a sweep of 18½ per sec., synchronised to 5 mains frequency. This is quite high enough to avoid flicker.

2. Sweep rate is fastest at the centre of the screen where the best resolution is usually wanted. At this point the sine wave is crossing the zero axis, and is changing at its greatest rate. However, the frequency plots will still be linear, as the f.m. oscillator is being frequency modulated at the same rate as the sine wave scan. I prefer to use a sawtooth.

3. The trace is displayed both left-to-right and right-to-left. There is some delay in the change in frequency, and the phasing of the two sweeps—c.r.o. and wobulator—has to be accurate to superimpose the two traces. Increasing the frequency range swept increases the delay, and necessitates a phasing control.

OSCILLATORS To obtain reasonably wide deviation using any of the L/C oscillators, the tuned circuit must be of low C, and hence has lower inherent frequency stability than is desirable. Any undesired hum or signal in the sweep will also modulate the f.m. oscillator. Thus a regulated power supply is virtually a must, although I find that a glow tube regulator is usually good enough.

MARKERS Calibration of the frequency scale is easy, if another oscillator of good frequency calibration is available. The signal from this oscillator, or signal generator, is fed into the detector, after the unit under test. The sweep signal passed by the unit being tested, and the signal from the generator are mixed in the detector, to cause a blip, or widening of the display trace, at the frequency where the two signals zero-beat.

It is not good practice to feed the marker into the unit under test, as the marker may fall in a part of the curve where attenuation is high, and the blip will not be discernible, and increase of marker input may overload the tested

*C.O. N.B.S. Transmitter 6WA, Wagon, W.A.
†"Radiotron Designers' Handbook," p.1137.
‡Johnson, "Single Valve F.M. Oscillators," "Wireless World," April, May, 1948.

¶Foot, "W.H.F. Panoramic Receiver," "Wireless World," Sept., 1953.

§Helfrich, "Wide Deviation Reactance Modulator," "Electronics," April, 1948.

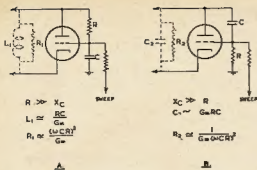


FIG. 1 - REACTANCE TUBE

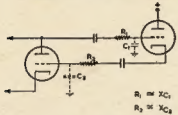


FIG. 2 - HELFRICH REACTANCE TUBE

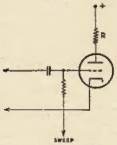


FIG. 3 - MILLER TUBE

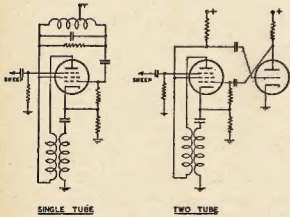


FIG. 4 - JOHNSON WOBBULATOR

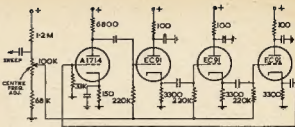


FIG. 5 - R/C RING OSC.

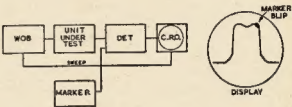


FIG. 6

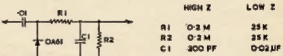


FIG. 7 - DETECTORS

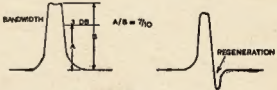


FIG. 8

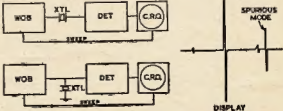


FIG. 9 - CRYSTALS

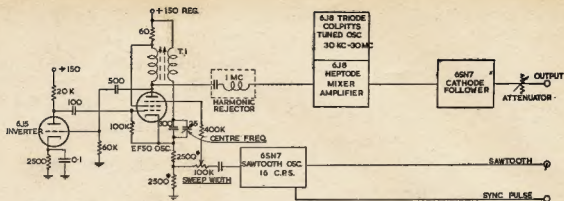
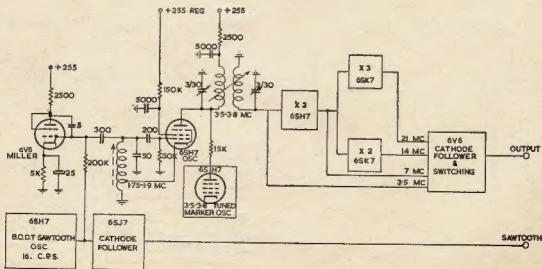
FIG. 10. 1 MC. \pm 200 KC. FM OSC. OF ALIGNMENT OSCILLATOR

FIG. 11- 11 MC + 2 MC F.M. OSC OF VIDEO SWEEP GENERATOR



unit. Any part of the curve may be identified by tuning the marker so that the blip is at the point desired. The frequency can be read off the marker generator calibration. See Fig. 6.

DETECTORS The most suitable is a germanium diode with an R/C filter, in a probe. The input impedance of the detector should be suited to the test point, and should load it as little as possible. A suggested circuit is shown in Fig. 7. Thermionic diodes are not very satisfactory, as the very low signal levels often available from the detector are masked by hum from the heater supply, particularly when using the high impedance probe.

APPLICATIONS Receivers.—For receiver alignment feed wobbulator into antenna terminals at a rest frequency in the desired band, and set the deviation to about 30 Kc. The whole receiver can then be aligned to give maximum sensitivity (height of response peak), desired bandwidth (width across 3 db points). See Fig. 8. No detector is required. The signal can be taken from the loudspeaker, headphone jacks, or from second detector output, for the c.r.t. vertical amplifier.

If the receiver is accurately calibrated, bandwidth can be measured by tuning the receiver itself so that a reference line on the c.r.t. is used to mark the 3 db points, as the receiver is tuned, and the display moves horizontally. The receiver calibrations will give the bandwidth.

I.F. Transformers or I.F. Amplifiers.—Feed the wobbulator, with rest frequency at the i.f., into the primary of the first i.f. transformer, or the mixer, via a very small capacitor (about 10 pF.). Connect probe to secondary of last i.f. transformer through another small capacitor. Adjust tuning (and coupling if adjustable) to frequency and bandwidth desired. A very finely calibrated marker oscillator is needed to measure a bandwidth of say 5 Kc. at an i.f. of 455 Kc.

I have used this method to adjust the coupling of a 455 Kc. i.f. transformer to critical (just no dip at peak of response) for a phasing type a.b. exciter. On subsequent check by r.f. c.r.o. measurement, I found the phase shift as near 90° as could be measured.

Crystals.—Place the crystal in series with, or in shunt with, the lead from the wobbulator to the detector. Set the rest frequency somewhere near the normal frequency of the crystal and use the widest deviation. A ringing type curve will be seen at all responses of the crystal within the swept range. The amplitude of the response is a rough guide to the crystal activity. Possible spurious modes, and their activity, are also indicated. Their frequencies can be measured with a marker. See Fig. 9.

Bandpass Exciters or Amplifiers.—As in receivers, the bandpass characteristics can be seen, a marker will show band edges, and the job can be tuned while you watch its response.

PRACTICAL Figs. 10, 11 and 12 show extracts of three wobulators in use here. I have shown in detail the circuit of the f.m. oscillator, with the rest of the unit in block form.

Fig. 10 is from a general purpose signal generator, tuning from 100 Kc. to 30 Mc. It has a 1 Mc. Johnson wobbulator with a sweep up to plus and minus 200 Kc. This is mixed in a 678, if required, with the signal generator output, giving swept signals plus and minus 1 Mc. either side of the setting of the main oscillator.

Fig. 11 is a simplified sketch of a video sweep generator using the reactance tube circuit by Helfrich to obtain a swept range of 11 Mc. to 13 Mc. After trebling, this is mixed with a fixed oscillator on 33 Mc., giving an output from 0-6 Mc. after mixing. This generator uses a feature called "offset" sweep, where in the f.m. oscillator only varies in frequency one way from its rest frequency.

Fig. 12 uses the Miller circuit in an Amateur bandpass sweep generator, to give a fundamental sweep from 1.75 Mc. to 1.9 Mc. By doubling and tripling, with bandpass transformers, output covering all Amateur bands from 3.5 Mc. to 21 Mc. is obtained at a fairly high level.

The panoramic adaptor is another widely used application of the wobbulator. In these units, a wobbulator at intermediate frequency beats with incoming signals in a receiver, and the beats are displayed on a c.r.t. The face of the tube is calibrated in frequency plus and minus that to which the receiver is tuned. Thus the panadapter displays all signals incoming within a band, as vertical "blips". The character of the blips enables identification of the signal as f.m., a.m. or c.w. Their position on the screen gives their frequency.

I have attempted to cover a very wide field in a short article, and much has had to be missed. The applications outlined are only a very few of those possible.

HINTS AND KINKS

FEEDER SPREADERS

Want some lightweight high grade r.f. insulation feedline spreaders? The polyethylene core from old co-axial cable is just the thing. Strip off the outer p.v.c. sheath, then the copper braid, and after cutting to required length, pull the inner conductor wires out.

Placed across Zepp and other feedlines with spacing up to 8 inches, a large number of such spreaders will weigh but a few ounces. They are easily fixed in place by drilling a small hole through at each end, then threading binding wire through.—VK2NO.

VALVE SOCKETS FOR EF50s

Many users of EF50, RL7, RL37 and similar types designed for "T" 9-pin sockets strike trouble with the spring contacts, where the sockets have been used in some wartime gear. Some people were over-generous with tropical varnish when it was decided to tropic-treat radio equipment of earlier war vintage, resulting in the gumming up of the once flexible contact springs in valve sockets. The wafers type in particular suffered from such treatment, so that impartial or incomplete contact with valve pins occurs.

The cure is to soak such sockets for an hour or so in suitable solvent—

acetone or methylated spirits—according to the requirement. After soaking, work the springs free with a small screw-driver and then close them together with small pointed pliers so that they will grip the pins when a valve is inserted.—VK2NO.

NEUTRALISING 6J6s

Neutralising condensers for such finicky small capacities as those in a 6J6 circuit are easily made from 70 ohm twin lead. Start with a 2 inch length and snip bits off with wire cutters until the required value is reached.

Another idea is to use two small brass or copper tubes set in insulating material—in a screening partition—with crossed-over p.v.c. insulated flex leads adjusted for correct capacity.—VK2NO.



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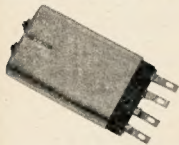
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Philips Miniature I.F. Transformer Type 4260

The Philips Miniature I.F. Transformer Type 4260 has been designed for receivers with an intermediate frequency of 455 Kc. where economy and space saving are of primary importance.

Two major Philips inventions, viz., the new h.f. magnetic material "Ferrocube," combining a high ring permeability with low losses, and the high-stability, low-loss "wire" capacitors of very small dimensions, have made it possible to construct this miniature i.f. transformer of high quality.



Two parallel coils with adjustable cores of "Ferrocube" material are each surrounded by three small rods of the same h.f. magnetic material.

All these parts together with the fixed capacitors are supported by two pieces of high-grade "Philite" material encased in an aluminium can, and are treated by a special process in low-loss compounds.

This construction ensures a very high degree of resistance against the influ-

ence of moisture and makes this transformer suitable even for very severe climatic conditions.

The fixed tuning capacitors are "wire" capacitors of 110 pF., 32 mm. long and 1.3 mm. in diameter.

In order to adjust the inductance values, small cores can be screwed into or out of each coil. These cores are fixed to the adjustment screws by means of plastic sleeves. The pitch of these screws has been chosen for quick and accurate adjustment. The sleeves guide the cores and thus prevent inaccuracies in adjustment.

The two sections possess identical characteristics, so that either of the two coils can be used as primary. This, and the fact that any of the terminals can be used as an earth connection, makes it possible to wire any set in the most efficient manner.

The unusual construction of the magnetic circuit and the very small stray capacitances of the "wire" capacitors have a favourable influence upon the characteristics of the i.f. transformer, type 4260, which has a high quality factor considering its small dimensions. The high stability and the small temperature error are of no little importance.

The dimensions of the can are such that the longest side is shorter than the corresponding dimensions of the valve holder, even in the case of the miniature valves, while the shortest side is only 10 mm. long. The filter can thus be placed in between two valves and the space it occupies is therefore reduced to a minimum. The high maximum permissible temperature (75°C.) is a great advantage in this respect.

Mounting is quickly and securely done by means of the spring, type 4261, supplied with each filter.

Technical Data:

| | |
|---------------------------------------|----------------------------|
| Quality factor | 100 |
| kQ | 0.9 |
| Capacitance across primary | 110 pF.* |
| Capacitance across secondary | 110 pF.* |
| Average frequency drift | 20 c/s. per °C. |
| Maximum working temperature | 75°C. |
| Longest side of can | 25 mm. (1") |
| Shortest side of can | 10 mm. (13/32") |
| Height of can | 36 mm. (1-7/16") |
| Mounting by means of a special spring | supplied with each filter. |
| * Wire capacitor. | |

The nominal working frequency is 455 Kc. for a wiring capacity not exceeding 15 pF. Other frequency ranges can be covered, depending on the wiring capacities of the i.f. circuit. If, for instance, the wiring capacity can vary between 5 and 10 pF., the transformer can be used for a range from 443 to 463 Kc.

ROSS A. HULL V.H.F. MEMORIAL TROPHY

Pictured below is the Ross A. Hull V.h.f. Memorial Trophy. The inscription at the foot of the column reads:

"To perpetuate the memory of an Australian Amateur—an early Member of the W.I.A.—who devoted his life to the Amateur Cause and who pioneered the v.h.f. field during his brilliant career as Editor of 'QST' and 'The Radio Amateur's Handbook.' Born in Melbourne in 1902, his untimely passing in 1938 was a great loss to the Amateur fraternity and the world of radio communications generally."



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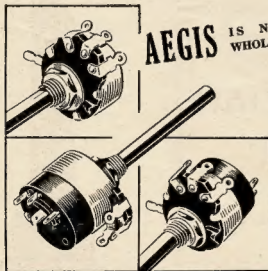
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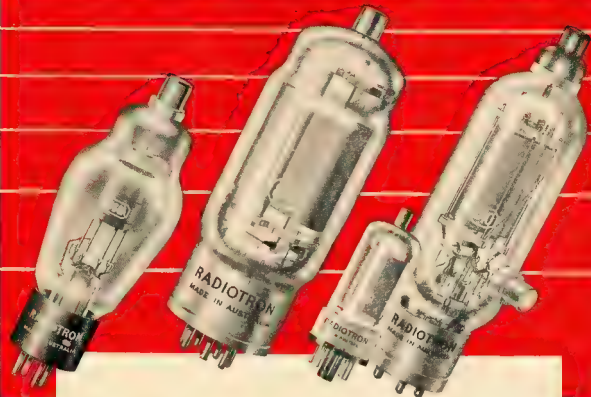
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RADIOTRON POWER VALVES



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SHORT WAVE LISTENERS' SECTION*

S.W.L. GROUP REACHES TO FAR CORNERS OF THE GLOBE

We have received two enquiries regarding the VKS Division S.W.L. Group. Firstly, from Fred Kuhns, of 47 South 14th Street, Allentown, Penna., U.S.A., and secondly, from John H. McKendrick, of 21 Adelaide Court, Hill Road, London, N.W.8. To both you chaps we offer a big welcome to this section of the Wireless Institute of Australia.

the heart of while listening to a DX station's program from Radio Australia, beamed to South America. John will be leaving England soon and will be visiting VK3 so hope to meet you again at our meeting John. He states that DX in the UK is going quite good, but that it is not so good although no VK3s. The gear is used at his location is an 1150 with converter for 21, 30 and 50 Mc., plus 5-0 Mc. Command and 11503 modified for 2 m.

From VK3, Albert Angus, of Diamond Tree, Australia, writes. We received a very informative letter. Albert is studying for his A.O.C.P. and we wish you lots of luck from VK3. Albert is using a 5-valve dual wave commercial jobber with vibrator power supply. All the best, and

WRITTEN BY: THE AUTHOR

144 Mo.: Gervard Lane heard six VK3s. Frank Seeber, of Preston, using a modified 329 to a 6-el. beam 20 ft. high, heard 45 VK3 stations.

81 Mo.: From Geoff Morris, all signals solid at 2400-0500 GMT. VR2CO, VR2DB, A13AH, A13AO, A14AA, A12AA, W2JAC/BCM (near Tokyo), and a KH6.

14 Mo. Geoff heard on this band. CE2, CE3,
CN8, DU1, EA3, E13, ET3, F3, F7, F14, GD5,
GW3, HB9, HZ1, KA0, KC5, KG6, KH8, KP4,
KP6, KR6, KT1, KU4, KX4, LU4, LU8, LU7,
MA9, OA2, OE1, PA5, PY3, ST7, SV0 (in Crete),
VK1, VK9, VQ4, VQ5, VQ8, VS2, VS6, VU2,
W3, W4, W8, WS/QMS, WS, XZ2, YU1, YU3,
YU3, YV5, ZC4 (in Cyprus), ZE2, ZK1, ZL,
ZM9, ZP, Z81, Z86, 451, 4X4, 5A2, 5A3

Stewart LILUS of Belmont, N.S.W. heard:
 CM9, KA3, KA7, KA0, KC9, KQ2, KG8, KH8,
 KR8, KR1, LU2, OQ8, OZ8, VK1, VK8, VR8,
 VS8, W2, W6, W8, ZL 487, Gordon J. Hepburn
 of N.S.W. heard: CE3, HC1, KA4, KA8, KH8,
 KP8, KR8, KV4, LU8, LU9, PY4, VK1, VK8,
 VR2, VR8, VS8, W4, W6/MQ, ZN6, ZX4 Cards
 received from YVIEU, YVBEA and CN8MO.
 A my location is: CE3, CM9, FL8, HC8,
 KR8, LU4, PK3, PY1, VR4, TI, VBI, VQ8,
 KR8, YZ4, YZ4, 487.

VQ, XZ, CO, WY.
 Len Poynter's home location: DU1, GS, HC1.
 HK3, JA2, OA4, VK1, VK9, VQ6, VR3, VS3.
 VS6, ZS5, ZS6, ZM6, 4X4, and while portable
 at Lakes Entrance using AR3: CT0, CT1, DL1,
 E13, FR7, KA, KC, KG, KH6, KL7, LA4, LU1.
 LU7, MP4, OZ7, VQ4, VQ8, VS3, ZD6, ZL.
 ZBA, and 437.

7 Mt.: Stations heard on this band were
JAG, VK2, VK3, VK6, VK7, VK9, VR3, W0, ZL.

* John Wilson, 37 Rayment St., Alphington, Vic.

Broadcast Band, S/W DX.—From Stewart Little, of N.R.W., we received notification that V.O.A. Station in the Philippines has been heard at 5D on 1140 Kc., running 1,000kw. between the hours of 1230-0100EST. Stewart also reports XFP, New Plymouth, N.Z., on 1370 Kc., running 2kw. and 2YA, Wellington, N.Z., on 570 Kc.

Also from VK2, Gordon Hepburn reports Radio Ceylon at 59 on 25.2 mxx. Also "Voice of Free China" located at Taiwan, Formosa, on BED? 42.1 mxx, BED8 7130 Kc and 25.8 mxx. 11.738 Kc., daily at 1750 to sign off at 2100 China time (0850-1300 GMT).

IDEAS EXCHANGED HERE

Each month in this section of notes we hope to publish ideas received from our readers that would be of interest to other s.w.l's. throughout VK land. The ideas can be in the form of better reception hints to modifications to your gear for listening.

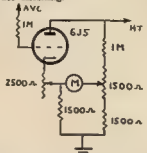


Fig. 1.—8 Meter Circuit.

The idea for this month is from Bill Leeming, VK3ALW, and I have personally tried this and it is a beaut! For some time now I have been after a good S meter circuit for an ARS, but was unsuccessful until Bill came along with this one.

The circuit is shown in Fig. 1, and there should be no difficulty in making it operate. The valve is an ordinary 6J5 and the potentiometers 1,500 and 2,500 ohms must be ganged together and of the linear type. The meter can be of the 0-1 Ma. type, or if more sensitivity is required an 0-5000 micro-amp. meter can be used.

S.W.L. CONT'CAT

This event is now in progress, from 1st January to 30th March. This is your last chance for receiving those QSOs. The Contest closes on 30th March at 2359 EST, so get to it and make those rigs run hot.

All QSL cards must be sent to "Contest Committee, S.W.I. Section, W.I.A., 181 Queen St., Melbourne, C.I. by the latest on 30th March 1953. Results will be announced via VK3WV in second week in August at 1130 hours. For full contest details, refer to the January issue, page 12, of "A.R."

DIGEST OF DX TIPS

3425 Kc.-VUD, India Request Programme at 11.45 p.m. (all times EST)
3850 Kc.-EEO, Teheran, Iran--commencing at 12.30 a.m.
4800 Kc.-Colombo, Ceylon 12.15 a.m.
7180 Kc.-JOB2, Tokyo, Japan--English News at 1000.
7405 Kc.-Radio Herondelle, Hanol--10.35 p.m.
11830 Kc.-VUD, Delhi--3.15 p.m.
17805 Kc.-DZ16, Manila--1.30 p.m., News at 8.0 p.m.
17870 Kc.-GRP, London--8.30 p.m.

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Fed. Secretary: L. D. Bowie, VK3DU, Box 351W, G.P.O., Melbourne.

QSL Bureau: R. E. Jones, VK3RJ, 33 Landsale Street, Box Hill, K.I.I., Vic.

DX C.C. Manager: G. I. Morris, VK3SZ, 30 Eighth Street, Parkdale, Vic.

NEW SOUTH WALES

President: Jim Corbin, VK3CZ.

Secretary: Harry Nicklas, VK3ACE, Box 1794 G.P.O., Sydney.

Meeting Night: Fourth Friday of each month at Science House, Gloucester Street, Sydney.

Divisional Sub-Editor: Ted Whiting, VK3CDO, 16 Loudon Street, Five Dock.

QSL Bureau: J. B. Corbin, VK3CZ, 78 Maloney St., Eastlake, Sydney (Inwards and Outwards).

Zone Correspondents: North Coast and Tablelands: Noel Hanson, VK3AR, 27 Comfort Ave., Cessnock; Western: W. H. Smith, VK3WH, Camblow, Forbes; South Coast and East: Eric Smith, VK3DY, 3 Colville St., Warracott; South Western: J. W. S. Edge, VK3AO, Wallace St., Coolamon; St. George: Chas. Coyle, VK3KX, 64 Carlton Cres., Kogarah; Western Suburbs: Barry Wallis, VK3AA, 33 Yvonne St., Concord.

FEDERAL

RESIGNATION OF ASSISTANT FEDERAL SECRETARY

As a result of business and health reasons, the Assistant Federal Secretary, Mr. John Rice-Oxley, has found it necessary to tender his resignation from this position. John VK3AKO has been the most able and capable of Executive and it is with regret that his resignation is accepted. The duties of keeping a master copy of the call book, together with the dispatch material for overseas areas, were expeditiously carried out and directed. John has indicated that at a later date, when his present commitments are lightened, he will again be available for any duties connected with the furtherance of the W.I.A.

FEDERAL COUNCILOR

Federal Executive has been advised that Mr. George Moss has again been elected to the position of Federal Councilor for VK3 Division for 1955-56. George, as VK3GM, is one of the older members of the Division and his wise counsel is much appreciated by those closely associated with him.

AMENDMENT TO CONSTITUTION

Under the direction of the Federal Council of the Wireless Institute of Australia, Federal Executive hereby gives notice that it is intended to alter the Federal Constitution (1947) of the W.I.A. as follows:

Section 28(a) By inserting immediately after the word "Proficiency," the words "or Limited Amateur Operator's Certificate of Proficiency."

LIST OF SUCCESSFUL AMATEUR CANDIDATES

The following is a list of candidates who were successful at the examinations for the Amateur Operator's Certificate and Amateur Operator's Limited Certificate held on 13th July and 13th October, 1954.

New South Wales

E. A. Drutt, 43 Canal Street, Griffith.

W. H. Harder, Flat No. 5, Royal Bldg., Argent Street, Broken Hill, Parade, Bar Beach.

J. E. Thompson, 21 Light Parade, Bar Beach.

M. G. G. O'Brien, 10 Ocean Street, Woollahra.

W. R. Cox, 44 Park Road, Hurstville.

B. Goodman, 20 Boalung Road, St. Ives.

D. B. Bull, 10 The Crescent, Oakes Road, West Pennant Hills.

G. Watson, 8 The Crook, Cottesloe, Homebush.

W. T. Spence, 100 Harding Road and Franklin Street, Matraville.

D. J. Lee, 1183 Victoria Road, West Ryde.

D. J. Lee, 1183 Victoria Road, West Ryde.

I. A. Duncanson, 29 Durr St., Broken Hill, Sth.

C. B. Fleck, 20 Yooloona Street, Griffith.

E. C. Savage, Box 331, Griffith.

VICTORIA

President: G. Dennis, VK3FT.

Secretary: C. Gibson, VK3FO.

Administrative Secretary: Mrs. G. Pickering, Law Court Chambers, 181 Queen St., Melbourne.

Meeting Night: First Wednesday of each month at the Radio School, Melb. Technical College.

Divisional Sub-Editor: K. E. Vincent, VK3AT, 14 Duncannon Ave., Ashburton, S.E.I.I.

QSL Bureau: Inwards—Graham Roper, VK3ZD, 18 Lucas St., South Caulfield, Vic. Outwards—Frank O'Dwyer, VK3OF, 180 Thomas St., Hampton, S.W. Vic.

Zone Correspondents: Central Western: W. J. Kinastis, VK3AK, 180 Launceston, Launceston, South Western: W. Wines, 11 Redford St., Warrnambool, and E. Giddings, VK3ANQ, 3 Nelson St., Warrnambool; North Eastern: A. D. Buchanan, VK3ED, "Boonland," Warraging, Far North Western: M. Folie, VK3GZ, 181 Lemon Ave., Mildura; Eastern: C. J. Arnold, VK3AJA, McAlister St., Stratford, North Western: C. Case, VK3ACE, Cumming Ave., Birchup; S.W. Group: John Wilson, 37 Raymond St., Alphonston, N.S.W.

Tasmania

President: Harold Murphy, VK3HM.

Secretary: W. A. Young, VK3AY, Box 636T, G.P.O., Hobart.

Meeting Night: First Friday in each month at the Royal Geographical Society Rooms, Ann Street, Hobart.

Divisional Sub-Editor: J. T. Hope, VK3EL, Royal Parade, St. John's Wood, Ashgrove.

QSL Bureau: Inwards—Felix, VK3AT, 16 Burdett St., Stafford; Outwards—Miss Chis O'Brien, 35 Jurada St., Stafford.

G. V. Randall, 8 Chisholm Street, Inverell.

P. W. White, 7 Allenby Road, Orange.

C. E. J. Sims, 1 Verlie Street, Maryland.

W. Squires, 27 Belcher Street, Bondi.

F. G. Baer, Flat 8, "Excelsa Manor," 75 Macquarie Street, Parramatta.

E. H. Murray, 26 Paul Street, Auburn.

D. Sellers, 80 Sandringham Street, Sans Souci.

A. R. J. Topp, 33 Western Road, Parramatta.

A. C. Clark, 136 Bronte Road, Waverley.

A. M. Wase, 1 Channon Parade, Forestville.

J. W. Cohen, 37 Hinkler Crescent, Lane Cove.

J. P. Folkard, 10 Greville Street, Watsons Bay.

A. J. Rogers, 43 Tupper Street, Newcastle.

W. J. Lark, 34 Church Avenue, Westmead.

W. J. Porter, 11 Teleps Avenue, Carlingbah.

H. H. Hansen, 70 Robey Street, Maroubra.

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A. W. D. Wilson, "Bundoran," Glenholmepon.

R. S. Beckett, No. 3 Married Quarters, School of Signals, Balcombe.

K. E. Semmler, Box 36, Murtoa.

X. C. McKellar, "Cassamar," May Street, Kesternwick.

G. A. R. Pearce, 207 Prospect Hill Road, Surrey Hills.

P. C. Ryan, 10 Seymour Grove, Camberwell.

R. A. A. Foot, 33 Munro Street, Ascot Vale.

M. M. Stares, 17 Daffodil Street, Wendouree West, via Ballarat.

L. H. Fetter, Main Street, Merrigum.

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R. J. Hilderbrand, 133 Simpson Street, East Melbourne.

H. T. Holmes, 13 Victor Street, Sunshine.

J. R. Fryer, 434 Plenty Road, Preston.

C. Luckman, 3 Milton Street, Canterbury.

M. E. Cullison, Fernshaw Road, Healesville.

H. B. Francis, 5 Noel Street, Ivanhoe.

H. B. A. Liburn, 21 Albert Street, Mitcham.

D. H. J. Reckin, 1878 Malvern Road, East Melbourne.

G. Walker, The Lodge, Ormond College, Caulfield.

J. R. Harrison, 7 Tiernan Street, Footscray.

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D. L. Bates, 150 Linton Road, East Brisbane.

Dr. I. C. Morrison, Avenue Lodge, 171 Riding Road, Hawthorn.

N. A. Roberts, 41 Kent Street, Rockhampton.

D. Fraser, G.O. Box 10, Warwick.

G. L. Lang, C/o Warwick Broadcasting Co., Pty. Ltd., Warwick.

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J. Purdon, 26 Brook Street, Windsor.

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M. M. Harding, 121 Collins Street, Broadview Gardens.

R. G. Henderson, 14 James Street, Southwark.

E. J. Kenny, 5 Fifth Street, Ferryden Park.

SOUTH AUSTRALIA

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Activity on the bands this month for DX has been very poor due to the erratic skip conditions prevailing. The far northern gang are trying to establish a 144 Mc. link—Cairns and Melbourne and Melbourne and Sydney members are trying to do the same between Townsville and Charters Towers as 50 Mc. band was a washout on two Sundays recently when attempts were made to establish a link.

4CJ giving 31 Mc. away and now on the gentlemen's band. 4JH trying to hear signs on 50 Mc, but so far nothing doing; also trying to contact on the 20 m. band. The two boys will convert at the latter's QTH not feeling properly according to Joe. 4WH still gives phone a go when no DX or CW. 4BX now using his 144 Mc. QTH. The two boys are 4JH re-building his low powered rig—4W. ARW again promising to stage a comeback—another new rig. The 4CJ and 4JH are still promising to be due to "Them Tar Hills." 4WRW has applied for N.Z.A.R.T. W.A.P. Award, phone band. Quite a number of the other boys still in the air, but I have not heard on the band—4RW.

SOUTH AUSTRALIA

The monthly general meeting of the VKS Division (the Division that sets the pace) was held at the Robinson Hotel, a very convenient gathering of members and visitors. The guest speaker for the evening was Mr. Scott, who chose for his subject, "Macguffin's Island." He spoke with a certain authority on his subject. Scott took a wide angle on his talk, he did not make any attempt at a lecture, but he did make it give his audience an interesting resume on his activities during his sojourn on the island. Possessing very dry wit and a real down-to-earth outlook on his subject, he naturally allowed that he soon had the interest of his audience and held it right up to the finish of his enjoyable talk.

The talk was illustrated with some interesting shots of the island and its inhabitants which were projected on the screen. The speed—indisputable—of the well arranged way they were projected on a screen by a gadget which added considerably to the overall interest of the talk, the use of thanks proposed so ably by Brian SCA, together with the long list of questions at the end of the talk, gave ample indication of just how well Scott shared the share of the evening's entertainment over.

Just in passing, I worked with Scott's father, Thomas Little, and Central to phone exchange quite a few years ago and it was remarkable just how much likeness there was between the two. I was very interested during the lecture only had to close my eyes and listen to Scott, and I could have sworn that his father was in the room and telling me one of his many Sunday School stories for which he was noted. Of course, I was too pure to listen! Pardon the digression, but I could not help alluding to the likeness, because it struck me so forcibly.

There was very little general business for the evening, although Luke SLL did have a few words to say on the matter of the certificates being awarded. The Council must be thanked for their services, and possibly these few words were the means of swaying the members to vote in favour of giving the certificates on the matter, which was that certificates were unnecessary, both from a financial and a personal angle. However, there was no go, and I could not see any more members getting up on their feet at the meetings and have their say on all matters connected with their hobby. It was a purpose of mine to bring to the attention of the genuine interest in the business side of the monthly meetings, and two, that it does not permit the Council to be reluctant to take a state of complacency under the mistaken impression that because nobody gets up at the meeting and voices a different opinion, or perhaps criticism, that therefore Council is always right.

At this point of the monthly notes I usually give the list of visitors present at the meeting but unfortunately I lost mine and when I rang Gordon SXU he did not have his list, and when I rang several others, they had also lost their list or some copies had never had a list. This is downright in-efficiency and I will have to shake them all up.

At the end of the month a few days at the caravan park of Kingston Park. I did not hear him on the air, but understand that he contacted quite a few of the locals on 40 mc. Don was in the air on 40 mc. I heard him from Aildings, working portable recently. He was in contact with Luke SLL when I heard him on the air, and I was very interested in hearing his power at the time. Luke SLL lost one of his poles in the recent big blow and as yet has not replaced it. Incidentally, OM,

I was having a little skip with the kiddies at the Pines, and your XVI joined in with me. When my feet became entangled with the rope and we were forced to stop, much to the amusement of the kiddies, I said to you, "That will get your fat down mate!" Would you be so kind as to point out to her that it is not fat—it is muscle, I repeat, muscle!

Frankie SLL will receive the 1958 award for the best hidden words under bushes. My reason for saying this is because a little dicky bird tells me that he has been putting quite a lot of words under the bushes and there for the A.O.C.P. with a deal of success, if all is to be believed. Nice work Frank, and I apologise for putting the spotlight of publicity on the best hidden words under bushes, but one hears so seldom of people doing something for nothing, that I feel it merits publicity.

Charlie SCR is not enjoying the best of health these days, but he will be back and will be on his feet again. The last time that I heard him was on 250 Mc. and he was saying that that day was looking a bit of colour. The last time that I contacted him was pre-war and was on 20 mc. Cheers Charlie and keep the old chin up. Quite a number of the old timers are thinking you're not often.

SOUTH EAST ABERN

The usual monthly meeting of the S.E. Area was held at the Robinson Hotel, a very convenient gathering of members with only two absentees—Claude SCJ and John JAH. The principle speaker for the night was of course the R.D. Trophy which was well deserved by all those present were able to make a detailed inspection as well as photographing it from all angles. The speaker, who was very kind, made a vote of thanks be passed to the members of the VKS Division for forwarding the trophy during its exhibition at Mount Gambier during its City Celebration Week, and whilst on this subject, it was on view all the week in a window of one of the local stores, and the trophy was well displayed together with favourable publicity for the grand hobby of Amateur Radio.

John SLD brought along to the meeting an A.W. small radio and rx which it was proposed to use with the Robe fishing fleet. He gave a detailed description of this interesting piece of equipment, which was well displayed in his well enjoyed talk, the third most important item of the meeting was brought forward—till, supper. This item was discussed in record time and was usual finished up at an exciting race between Col SCJ and Stuart SMS to see just which one would have the last piece of crabapple. This item was discussed in record time and was usual finished up at an exciting race between Col SCJ and Stuart SMS to see just which one would have the last piece of crabapple. This item was discussed in record time and was usual finished up at an exciting race between Col SCJ and Stuart SMS to see just which one would have the last piece of crabapple.

STW has very little to report on his doings on the air this month although he was heard on the unmentionable band occasionally. Tom Scott reported that he had been to the evidence of his trip to Portland and appeared to have been in the sun to good effect. SMS has managed to keep his radio on the air on 20 mc, but band conditions have reached an all-time high this month and this, coupled with the fact that Stuart has been busy with the annual Radio Society Christmas Dinner Week, meant that he had very little time for DX or what have you.

ERGI has been fully recovered from the visit of the stork and that the new arrival is doing extra well. There is no doubt about it. Ergi's fathers have to go through a lot, although for some reason or other, the doctors claim that they have never lost a father, yet! It's our fortune and ability to suffer pain in silence, and so I can only say that I send this to your XVI. Ergi She might give a sneering laugh like mine did when she read it, it reminded me of a nursery rhyme which I had just finished sharpening the teeth. Fairly gruesome, I can tell you.

SCR has been somewhat on the sick list this month and has only been able to do a little work on the air. He has been heard on the unmentionable band once or twice also, but has not been feeling much like radio. Hope he is well. Claude SCA is still in the air, working the nature of which is still in the secret and drawing board stage as yet. However Col. is something like me, very slow to start a breaker. I can only say that I know when to stop! Of course your XVI will tell you different, but don't take any notice of what I say. I can only say that I know when I see things through our heads. Whoops! I can't see, something just hit me on the nose!

Quite a lot of traffic passed through Mount Gambier this month including Charlie SAUP and family, Roy SMD and family, the XVI of Jack ZIP and her brother-in-law Bill SLL, Roy SMD and family, the XVI of Jack ZIP and her brother-in-law Bill SLL. The last mentioned boys are on a hitch-hike tour of VK and really felt important when they hit Mount Gambier and found the City Band. The Governor, the welcoming committee lined up apparently to greet them. However they were soon deflated when they woke up in the morning and found that the City Band Week festivities. It goes without saying that all of these visitors found their way to the QTH of Stuart SMS and were given their share of the fun. The visitors were very kind, having all those VKs in the same area at the same time, all it would want would be Pinco. The visitors were very kind, having all those VKs in the same area at the same time, all it would want would be Pinco. The visitors were very kind, having all those VKs in the same area at the same time, all it would want would be Pinco.

A visitor to the S.E. meeting this month was Brian SXAB who has a steel tower 80 feet up in the air, a 500, and lots of enthusiasm. He is a very active member of the S.E. Area, and is an unmentionable band. He also passed on the information that Wally SXP now has a new rig, and hopes to be more active in the future.

COUNCIL

Two members of the present VKS Council did not seek re-election for next year, but aside from this change the set-up will be the same as last year. The members of the Council who were re-elected were: Brian SCA, Col SCJ, and Scott SCA. The new nominations were received from the membership and therefore it is to be assumed that the members of the Council are satisfied with the VKS Division. Whilst the matter of affairs may be quite OK on paper, it is somewhat a disappointing outlook for the future of the Division on the executive side. The present Council contains no newcomer to Amateur Radio and has been that way for many years.

John SLD brought along to the meeting an A.W. small radio and rx which it was proposed to use with the Robe fishing fleet. He gave a detailed description of this interesting piece of equipment, which was well displayed in his well enjoyed talk, the third most important item of the meeting was brought forward—till, supper. This item was discussed in record time and was usual finished up at an exciting race between Col SCJ and Stuart SMS to see just which one would have the last piece of crabapple.

The two members to resign from the Council were Charlie SON, who was handing the Divisional trophy, and Joe SMD, who has been an active worker for VKs for many years. I care to remember. We are sorry to lose these two solid workers from the Council, but realise that how responsible in the Council, and a desire to get among the boys at the meetings in the case of Joe, must be accepted. Both agreed to help Council if at any time their services should be required for work which is at least better than was at first thought.

The making of Councils and Committees reminds me that the following will comprise the members of the Advisory Committee for 1959: Gordon SXU, Col SCJ, and Scott SCA. All in good selection, and one that will temper judgment with understanding and common sense, and one that will temper judgment with understanding and common sense, and one that will temper judgment with understanding and common sense.

Still talking of Councils, even if you are not a member of the Council, it is a good idea to have a fellowship and even tempered atmosphere that exists in the VKS Council these days. I am not suggesting that previous Councils were not the same, but that the present Council is a better one. I am not suggesting that previous Councils were not the same, but that the present Council is a better one. I am not suggesting that previous Councils were not the same, but that the present Council is a better one. I am not suggesting that previous Councils were not the same, but that the present Council is a better one.

WOOMERA CLUB

Due to the Xmas season very little activity has been reported from the Woomera Club and with most of the members of the Woomera Radio Club being absent on their annual holiday, the station has been in a decided inactive state.

Bry SFF has been down in civilisation for a while, but has been in touch with a number of interesting contacts with the local boys about town. This is the first time that he has had an opportunity to operate his own rig from

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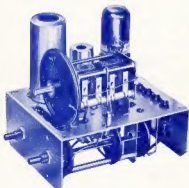
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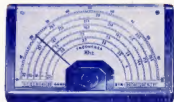
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Complete constructional details for this Unit given in October, 1954, issue of "CQ."

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